DECam Funding Need Profile (Dec 06)

(then yr $, Overhead included)

	FY2007	FY2008	FY2009	FY2010	FY2011	Total
DOE MIE	**0**	**6.42**	**7.11**	**4.98**	**0.54**	**19.05**
DOE R&D	4.03	1.49	0	0	0	5.52
DOE TPC	**4.03**	**7.91**	**7.11**	**4.98**	**0.54**	**24.57**

- This gave a technically driven schedule resulting in delivery to CTIO in April 2010 (no explicit contingency) Optics critical path.
- Pres. Bud. Req. Feb. 2007: 3.6 in MIE funds in FY08
- From Kathy:
  - FY08: 3.6 in MIE + 1.1 in OPC = 4.8
  - FY09: 6.5 in MIE + 1 in OPC = 7.5
  - Further request: what happens if FY09 is a total of 6.5 not 7.5
- From Mont/John: OPC in FY08 is not fixed. Additional R&D funds could be possibly negotiated with the lab or from collaborators

DARK ENERGY SURVEY

Strawman installation and commissioning schedule

1. 3 weeks for installation on telescope
2. 3 weeks on sky
3. 4-6 weeks for analysis & adjustment
   - DECam is available for daytime test in its stowed (inverted) position.
4. 2 weeks on sky
   - Complete remaining tasks of previous two slides
   - Verify modifications of step 3
   - Staff training
   - DES acceptance test sign-off
5. 2 weeks science verification / contingency
   - NOAO community scientists carry out demonstration science, no proprietary period, rapid dissemination of results. Oohs & aahs.
6. Community &/or DES observations begin a minimum of about 4 months after Installation begins

Profiles and Dates

Deliver to CTIO

(No contingency)

DARK ENERGY SURVEY

July 2010

	Estimated Total Base w/Ind. & Esc.				
	FY08	FY09	FY10	FY11	Total
R&D	2.3	0.0	0.0	0.0	2.3
MIE	3.6	7.5	6.2	1.9	19.2
Total	5.9	7.5	6.2	1.9	21.5

Dec 2010

	Estimated Total Base w/Ind. & Esc.				
	FY08	FY09	FY10	FY11	Total
R&D	2.3	0.0	0.0	0.0	2.3
MIE	3.6	6.5	7.0	2.2	19.2
Total	5.9	6.5	7.0	2.2	21.6

We expect to switch to R&D funds (from Generic) in Fy07 4th quarter and expect to spend ~ $0.5k Labor, $0.5M M&S
This adds $1M to the total project costs listed above, depends on CD-1 date.

After delivery to CTIO: 3.5 months of reassembly + testing
+ 5.5 months of contingency on L1 milestone for testing complete
+ 5 months contingency for CD-4
CD4 date is ~14 months after delivery to CTIO (Sept. 2011 - ~ March 2012)

Breakout Session DECam 1

DARK ENERGY SURVEY

- **14:30 – 17:00 Parallel Breakout Streams; Breakout Session # 1 (2 hours)**
- Stream #1, Session #1: DECam, CFIP, and Integration:
- Technical details of the subprojects, current status of R&D, Level 2 cost and schedule
- Presentations:
  - 20+10 min – Brenna: more detailed overview of DECam project, how it all fits together and is coordinated, Critical paths (focus on optics and CCDs), R&D program so far and progress, Remaining questions, Risks, cost and schedule, what ever doesn't fit in the plenary talk
  - 20+10 min – Rebecca – Optical Design ~ same talk as at the optics review, let them know the design is well optimized, meets the specs and can be built.
  - 20+10 min – Juan: CCD characterization, why we think the CCDs will meet our specifications, what we know about the yield

Breakout Session DECam 2a

DARK ENERGY SU

- **9:30 – 12:00– Parallel Breakout Sessions Continued, Session #2 CCDs, Focal Plane, Front End Electronics, SISPI: Level 2 cost and schedule for these items (WBS 1.3, 1.3. 1.6)**

- 20+10: Tom: CCD tracking, packaging, Focal Plane detector WBS cost and schedule
- 20+10: Terri: Readout electronics Overview, Status of the 12 channel, clock board, and SLINK, R&D questions still to be answered, cost basis of estimate and schedule
- 20+10: Jon: SISPI, online monitoring, cost and schedule

- Additional backup talks prepared:
  - 10+10: Natalie: CCD wafer processing and probing
  - 10+10 Greg Derylo: CCD packaging detailed plans
  - 10+10: Laia, or someone from Spain to talk about MCB, SLINK, Clock board, Cube, plans
  - 10+10 Jim Grudzinsiki: Controls plans
  - 10+10: Inga or Tao: mutilcrate, supervisor layer, Guider issues
  - 10+10: Gladders on Alignment and Focus

Breakout Session DECam 2b

DARK ENERGY SURVEY

DECam, CFIP, and Integration: Stream #1, Session #2b: Camera, Corrector, mechanical systems, and external cryogenic systems for DECam, Level 2 cost and schedule for these item (WBS 1.4 and 1.5)

- 20+10: Herman: C5 cell, Focal plane, Camera and cooling system design – Camera cost and schedule basis of estimate
- 20+10: Peter (Video): C1-4 cell design, Procurement strategy for the blanks and polishing, coating.
- 20+10: Andy: Barrel Design, overview of Cage, hexapod, mechanical systems and interfaces Design, Cost and Schedule

- Additional backup talks:
  - 10+10: Bruce: Filter changer, Filter procurement plans, Shutter (Filter specs defined in Science session)
  - 10+10: David Brooks: Assembly and testing of the lens in the cells, cells in the barrel, shipping to CTIO
  - 10+10: Dave McGinnis: Hexapod specs and plans

3rd Breakout DECam + CFIP

DARK ENERGY SURVEY

- **13:00 – 15:30– Parallel Breakout Sessions Continued**

  Focus on Integration

- 20+10 min – Tim: more detailed information about how DECam fits in at the Blanco, how CTIO stays in contact with the DECam design, the Community needs document, Planned observing modes, the flip, 8 filters, SISPI from the CTIO point of view, Blanco performance upgrades if it didn't fit in the plenary talk
- 15+10: Andy: Overall Mechanical integration including plans for Telescope simulator and testing prior to shipment to CTIO
- 15+10: Terri: Electrical Integration, testing plans, before shipping to CTIO and at CTIO
- 15+10: Jon: Plans for Integration and testing of SISPI with CTIO and DM, in particular TCS

Schedule file

DARK ENERGY SURVEY

- Generic R&D (no EVMS) – but we are using the schedule file to track costs and plan.
- In March we did a detailed comparison of the labor from Oct-Feb.
  - Found some effort reporting problems
  - Used experience of Oct-Feb to adjust future tasks

FTE's

	Act. %	% Scheduled	sched-act
PPD_BUD	0.17	0.50	0.34
PPD_SCHED	0.36	0.50	0.14
PPD_AS	0.00	0.10	0.10
PPD_EE	3.84	4.01	0.17
PPD_ME	2.16	2.80	0.64
PPD_DESIGN	1.40	1.91	0.52
PPD_ET	0.53	0.48	-0.05
PPD_ET_SR	2.98	2.12	-0.86
PPD_MT	0.88	0.95	0.07
PPD_SD	1.12	1.48	0.36
PPD_MT_SR	0.59	1.43	0.84
TD_Mach	0.36	0.35	-0.01
PPD_PE	0.00	0.50	0.50
	14.40	17.15	2.75

Short by ~ 2.5 FETs, mostly in ME and MT

Generic R&D 2007

DARK ENERGY SURVEY

- Comparison of actual and scheduled labor for Oct-Feb.

		Actual	Scheduled	Loaded Actual	Scheduled
		Hours	Hours	Costs	Costs
40.38.10.01	General Management	883	1,718	94,541	179,925
40.38.20.01	Focal Plane Detectors	2,769	1,989	210,780	170,945
40.38.20.03	Front End Electronics	3,722	4,174	310,505	396,929
40.38.20.10	Opto-Mechanical	1,698	2,927	148,417	253,899
	Total	9,072	10,807	764,244	1,001,698

We could show this sort of comparison at the review after a bit more tuning.